

CLAIMS

1. A catalytic selective oxidation reactor, comprising a reactor vessel (1) with converter current cooling means (5,6,7) and at least one stage, each stage being provided with an inlet for a first feedstock (2), and inlet for a second feedstock (8), gas mixing means (9a) and a catalytic reaction zone (4).
2. A reactor according to claim 1, wherein the catalytic reaction zone comprises a selective oxidation catalyst deposited upon a metal support.
3. A reactor according to claim 2, wherein the metal support is mounted in good heat exchange contact with the cooling means.
4. A reactor according to any one of the preceding claims, wherein the cooling means comprises a central jacket mounted within the reactor.
5. A reactor according to any one of the preceding claims, having from 2 to 10 stages.
6. A reactor according to claim 5, having four stages.
7. A reactor according to any one of the preceding claims, connected to the output from a reformer such that CO is removed from the output gas to a level where the output from the reactor may be fed to a fuel cell.
8. A process for the removal of quantities of CO from a hydrogen feedstock by partial oxidation, comprising at least one step of admixing said feedstock with a quantity of oxygen, passing the resulting mixture over a selective oxidation catalyst in a selective oxidation zone and recovering a hydrogen product with reduced content of CO, whilst simultaneously cooling the selective oxidation zone by counter-current coolant flow.
9. A process according to claim 8, wherein the selective oxidation zone is maintained at a temperature in the range 100 to 250°C.

10. A process according to claim 8 or 9, providing hydrogen to fuel a fuel cell.